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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,045	08/27/2001	Stefan Marghucrite Jean Willems	BE 000017	4484

24737 7590 12/01/2005

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

CHAU, COREY P

ART UNIT PAPER NUMBER

2644

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,045

Applicant(s)

WILLEMS, STEFAN
MARGHUERITE JEAN

Examiner

Corey P. Chau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 5-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8, 5, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6067360 to Kasai et al. (hereafter as Kasai).

3. Regarding Independent Claim 8, Kasai an apparatus for localizing a sound image and a method for localizing the same comprising: input means for receiving input left and right front sound signals (F_L, F_R) and input left and right rear sound signals (S_L, S_R); left and right front loudspeakers (4L, 4R) for reproducing sounds corresponding to said input left and right front sound signals; **generating means (Figs. 1, 5, and 8)**, coupled to receive said input left and right front and rear sound signals, for generating left and right virtual sound signals (Figs. 1, 5, 7, and 8; column 5, lines 48-67); and means for combining the left and right virtual sound signals and the input left and right front sound signals (18L, 18R), respectively, to form output left and right front sound signals for application to said left and right front loudspeakers (Figs. 1, 5, 7, and 8), wherein said left and right front loudspeakers reproduce both said sounds corresponding to said input left and right front sound signals and left and right virtual sounds corresponding to said left and right virtual sound signals (Figs. 2, 4, and 6; column 2, lines 32-48), said generating means generates said left and right virtual

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sound signals such that the left and right virtual sounds emanating from said left and right front loudspeakers appear, to a listener, to originate from virtual left and right loudspeakers positioned in a region between 80 and 100 degrees with respect to the listener (Figs. 2, 4, and 6; column 5, line 48 to column 6, line 7). Kasai does not expressly disclose left and right rear loudspeakers for reproducing sounds corresponding to said input left and right rear sound signals. However, the Examiner takes official notice that it is well known in the art to provide the left and right rear sound signals (S_L, S_R) to left and right rear loudspeakers due to the fact that a proportion of multi-media user will already possess, or will buy a 4 (or more) speaker configuration to cater for alternative formats, such as Dolby Digital. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kasai to provide the left and right rear sound signals (S_L, S_R) to left and right rear loudspeakers due to the fact that a proportion of multi-media user will already possess, or will buy a 4 (or more) speaker configuration to cater for alternative formats, such as Dolby Digital.

4. Regarding Claim 5, Kasai as modified does not expressly disclose generating means comprises a low-pass filter for filtering the left and right rear sound signals. However, the Examiner takes Official Notice that it is well known in the art to provide a low-pass filter for the left and right rear sound signals in order to filter out high frequencies, therefore providing a desired frequency range. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kasai as modified to utilize a low-pass filter for the left and right rear sound

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signals in order to filter out high frequencies, therefore providing a desired frequency range.

5. Regarding Claim 6, Kasai as modified discloses left and right rear loudspeakers for reproducing sounds corresponding to said input left and right rear sound signals, but does not expressly disclose the generating means comprises a delay circuit for delaying the left and right rear sound signals. However, the Examiner takes Official Notice that it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a delay for the left and right rear sound signals in order to compensate for the delay cause by the filters, as applied to the other sound signals (Figs. 1, 5, 7, and 8; column 5, lines 31-47; column 6, lines 57-67). Therefore it would have been obvious at the time the invention was made to modify Kasai as modified to provide a delay for the left and right rear sound signals in order to compensate for the delay cause by the filters, as applied to the other sound signals.

6. Regarding Claim 9, Kasai as modified discloses said generating means comprises: first combining means for combining said input left front sound signal with said input left rear sound signal (16L); second combining means for combining said input right front sound signal with said input right rear sound signal (16R); and a virtual filter coupled to said first and second combining means (Figs. 1, 5, 7, and 8), said virtual filter forming said left and right virtual sound signals (Figs. 2, 4, and 6; column 2, lines 32-48).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6067360 to Kasai in view of U.S. Patent No. 5412732 to Kanishi et al. (hereafter as Kanishi).

8. Regarding Claim 7, Kasai as modified does not expressly disclose the generating means comprises a reverberation circuit to which the left and right rear sound signals is applied. Kanishi discloses a stereo surround system comprising a reverberation sound generation circuit, wherein the reverberation sound generation circuit reproduces sound with more felling of a concert hall presence and three dimensional sound field (column 8, line 66 to column 9, line 9). Therefore it would have been obvious to one having ordinary skill in the art to modify Kasai as modified with the teaching of Kanishi to incorporate a reverberation sound generating circuit in the generating means to which the left and right rear sound signals is applied in order to reproduce sound with more felling of a concert hall presence and three dimensional sound field.

Allowable Subject Matter

9. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed 8/26/2005 have been fully considered but they are not persuasive.

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11. With respect to Applicants argument on pages 7 and 8, stating that "Applicant submits it appears from the above that the Examiner is equating left and right surround signals/sounds with left and right rear signals/sounds. In fact, these are actually four different signals/sounds", has been noted. However, the Examiner respectfully disagrees. It is well known in the art that the left and right surround signals/sounds is equivalent with left and right rear signals/sounds, for example U.S. Patent No. 6721425 to Aylward discloses the originating left and right channel surround signals (also referred to as the left and right rear channel signals)(column 1, lines 24-34); U.S. Patent No. 6385320 to Lee discloses two rear SL (surround left)- and SR (surround right)-channel speaker sets for sound on rear left and right sides thereof (Fig. 1; column 1, lines 31-39); and U.S. Patent No. 5666422 to Harrison et al. discloses the left and right rear (surround) signals are reproduced on speakers behind the listener (column 1, lines 56-63). Therefore Kasai disclose receiving and processing input left/right rear signals.

12. With respect to Applicant's argument on page 8, stating that "theses surround signals are not meant to be applied to rear loudspeakers, but rather to surround loudspeakers located laterally of the listener. This is support in the Fosgate patent cited by the Examiner in which left/right side (surround) signals LS/RS are directed to loudspeakers radiating laterally to the listening area, while left/right back (rear) signals LB/RB are directed to the loudspeakers radiating toward the back (rear) of the listening area", has been note. However, the Examiner respectfully disagrees. Fosgate does not discloses left/right side signals LS/RS are equivalent to surround signals. Therefore,

Fosgate does not support the surround loudspeakers are located laterally to the listener.

In addition, claim 1 recites "input means for receiving input left and right front sound signals and input left and right rear sound signals; left and right front loudspeakers for reproducing sounds corresponding to said input left and right front sound signals; left and right rear loudspeakers for reproducing sounds corresponding to said input left and right rear sound signals", but does not clearly define a reference point wherein the left and right rear loudspeakers are located relevant the reference point, therefore the location of the left and right rear loudspeaker can be interpreted as many things. Therefore Kasai disclose receiving and processing input left/right rear signals.

13. With respect to Applicant's argument on page on page 8, stating that "Kasai et al. neither discloses nor suggests receiving and processing input left/right rear signals", has been noted. However, the Examiner respectfully disagrees. See arguments above.

14. In response to applicant's argument on page 9, that "there is nothing in the specification or claims that indicate that the low-pass filter is inserted merely to provide a desired frequency range", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

15. In response to applicant's argument on pages 10 and 11, that "one can only presume that the generating means requires these delay circuits in order to properly generate the left and right virtual sound signals", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior

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art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). See Figs. 1, 5, 7, and 8; **column 5, lines 31-47; column 6, lines 57-67.**

16. With respect to Applicant's argument on page 11, stating that "Applicant submits that Kanishi et al. does not supply that which is missing from Kasai et al., i.e., processing input left and right front sound signal along with input left and right rear sound signals, to generate signals for the left and right front speakers, along with the input left and right rear sound signals for left and right rear speakers, so that the sound signals from the left and right front speakers produce virtual surround speakers to the left and right sides of the listener", has been noted. However the Examiner respectfully disagrees. See arguments above.

Conclusion

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 28, 2005
CPC


VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600
11/28/05